

Serial No. **09/725,514**

Docket No. **K-0241**

Amendment dated **May 3, 2005**

Reply to Office Action of **December 3, 2004**

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Original) A method for allocating cell ID codes in a mobile communication system of a cellular mode comprising:

generating ID codes using Hadamard codes; and

allocating the generated ID codes to cells which require ID codes.
- 2 (Original) The method of claim 1, wherein generating the ID codes either by deleting or puncturing first bits of the Hadamard codes.
3. (Original) The method of claim 1, wherein generating the ID codes either by deleting or puncturing first and second bits of the Hadamard codes.
4. (Original) The method of claim 1, wherein generating the ID codes by deleting first, second and sixth bits of the Hadamard codes.

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5. (Original) The method of claim 1, further comprising:
selecting Hadamard codes in which the first bit of the second half of a code has a
bit value of 0; and
generating the ID codes using the selected Hadamard codes.
6. (Original) The method of claim 5, wherein generating the ID codes either by
deleting or puncturing first bits of the Hadamard codes.
7. (Original) The method of claim 5, wherein generating the ID codes either by
deleting or puncturing first and second bits of the Hadamard codes.
8. (Original) The method of claim 5, wherein generating the ID codes by deleting
first, second and sixth bits of the Hadamard codes.
9. (Original) The method of claim 1, wherein the Hadamard codes have code bit
lengths of either 8 or 16.
- 10- 42. (Canceled)

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43. (New) A method of selecting an identification code of a primary cell by a user equipment, comprising:

selecting the primary cell among a plurality of cells based on a measurement of common pilot signals received from the cells; and

selecting the identification code from one of modified Hadarmad codes, wherein each modified Hadarmad code comprises a Hadarmad code where at least one bit is not used or has been deleted.

44. (New) The method of claim 43, wherein the identification code of the primary cell is selected from one of the following:

| Identification label | Identification code "long" |
|----------------------|----------------------------|
| a | 0000000000000000 |
| b | 101010101010101 |
| c | 011001100110011 |
| d | 110011001100110 |
| e | 000111100001111 |
| f | 101101001011010 |
| g | 011110000111100 |
| h | 110100101101001 |

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45. (New) The method of claim 43, wherein the identification code of the primary cell is selected from one of the following:

| Identification label | Identification code "short" |
|----------------------|-----------------------------|
| A | 00000 |
| B | 01001 |
| c | 11011 |
| d | 10010 |
| e | 00111 |
| f | 01110 |
| g | 11100 |
| h | 10101 |

46. (New) The method of claim 43, wherein the identification code of the primary cell is selected from one of the following:

| Identification label | Identification code "short" |
|----------------------|-----------------------------|
| a | 000 000 |
| b | 000 111 |
| c | 101 101 |
| d | 101 010 |
| e | 011 011 |
| f | 011 100 |
| g | 110 110 |
| h | 110 001 |

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47. (New) The method of claim 43 or 44, wherein the first bit of each Hadarmad code is not used or has been deleted to form the modified Hadarmad codes.
48. (New) The method of claim 47, wherein the each Hadarmad code comprises 16 bits, and deletion is performed by puncturing.
49. (New) The method of claims 43, wherein the first bit and at least one other bit of each Hadarmad code are not used or have been deleted to form the modified Hadarmad codes.
50. (New) The method of claim 49, wherein the at least one other bit is the second and sixth bits.
51. (New) The method of claim 50, wherein each Hadarmad code is 8 bits, and deletion is performed by puncturing.
52. (New) The method of claim 49, wherein the at least one other bit is a second bit of each Hadarmad code.

53. (New) The method of claim 52, wherein each Hadarmad code is 8 bits, and deletion is performed by puncturing.

54. (New) The method of claim 43, 44, or 45 wherein the selected identification code bits are transmitted within a radio frame structure.

55. (New) The method of claim 54, wherein the radio frame structure comprises 15 slots, and the corresponding selected identification code bit is provided in a 1 bit feedback identifier (FBI) field of the slot.

56. (New) The method of claim 43 or 46, wherein the selected identification code bits are transmitted within a radio frame structure, which comprises 15 slots, the corresponding selected identification code bits are provided in a 2 bit feedback identifier (FBI) field of the slot.

57. (New) The method of claim 43, wherein a user equipment (UE) periodically sends the selected identification code of the primary cell via a portion of an uplink feedback indicator (FBI) field.

58. (New) A method of sending an identification code of a primary cell by a user equipment, comprising:

selecting the primary cell among a plurality of cells based on a measurement of common pilot signals received from the cells;

selecting the identification code from one of a plurality of codes, wherein each identification code comprises a binary bit sequence, and a first bit of each binary bit sequence has a binary value of "0"; and

sending the identification code after the first bit is punctured.

59. (New) The method of claim 58, wherein the identification code of the primary cell is selected from one of the following:

| Identification label | Identification code "medium" |
|----------------------|------------------------------|
| a | (0)0000000 |
| b | (0)1010101 |
| c | (0)0110011 |
| d | (0)1100110 |
| e | (0)0001111 |
| f | (0)1011010 |
| g | (0)0111100 |
| h | (0)1101001 |

and the binary bit in brackets is the first bit that is punctured.

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60. (New) The method of claim 58, wherein the identification code of the primary cell is selected from one of the following:

| Identification label | Identification code "long" |
|----------------------|----------------------------|
| a | (0)0000000 (0)0000000 |
| b | (0)0000000 (1)1111111 |
| c | (0)1010101 (0)1010101 |
| d | (0)1010101 (1)0101010 |
| e | (0)0110011 (0)0110011 |
| f | (0)0110011 (1)1001100 |
| g | (0)1100110 (0)1100110 |
| h | (0)1100110 (1)0011001 |

and the binary bits in brackets are the first bit that is punctured and at least one other bit that is punctured.

61. (New) The method of claim 58, wherein the identification code of the primary cell is selected from one of the following:

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| Identification label | Identification code "medium" |
|----------------------|------------------------------|
| a | (0)000 (0)000 |
| b | (0)000 (1)111 |
| c | (0)101 (0)101 |
| d | (0)101 (1)010 |
| e | (0)011 (0)011 |
| f | (0)011 (1)100 |
| g | (0)110 (0)110 |
| h | (0)110 (1)001 |

and the binary bits in brackets are the first bit that is punctured and at least one other bit that is punctured.

62. (New) The method of claim 58 or 59 wherein the selected identification code bits are transmitted within a radio frame structure.

63. (New) The method of claim 62, therein the radio frame structure comprises 15 slots, and the corresponding selected identification code bit is provided in a 1 bit feedback identifier (FBI) field of the slot.

64. (New) The method of claim 58, 60 or 61, wherein the selected identification code bits are transmitted within a radio frame structure, which comprises 15 slots, the corresponding selected identification code bits are provided in a 2 bit feedback identifier (FBI) field of the slot.

65. (New) The method of claim 58, wherein a user equipment (UE) periodically sends the selected identification code of the primary cell via a portion of an uplink feedback indicator (FBI) field.

66. (New) The method of claim 58, 59, 60, or 61, wherein the each of the plurality codes comprises Hadarmad code of 16 bits or 8 bits.

67. (New) A method of sending an identification code of a primary cell by a user equipment, comprising:

selecting the primary cell among a plurality of cells based on a measurement of common pilot signals received from the cells;

selecting the identification code from one of Hadarmad codes; and

sending the identification code after at least one bit is punctured.

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68. (New) The method of claim 67, wherein the identification code of the primary cell is selected from one of the following:

| Identification label | Identification code "medium" |
|----------------------|------------------------------|
| a | (0)0000000 |
| b | (0)1010101 |
| c | (0)0110011 |
| d | (0)1100110 |
| e | (0)0001111 |
| f | (0)1011010 |
| g | (0)0111100 |
| h | (0)1101001 |

and the binary bit in brackets is the first bit that is punctured.

69. (New) The method of claim 67, wherein the identification code of the primary cell is selected from one of the following:

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| Identification label | Identification code "long" |
|----------------------|----------------------------|
| a | (0)0000000 (0)0000000 |
| b | (0)0000000 (1)1111111 |
| c | (0)1010101 (0)1010101 |
| d | (0)1010101 (1)0101010 |
| e | (0)0110011 (0)0110011 |
| f | (0)0110011 (1)1001100 |
| g | (0)1100110 (0)1100110 |
| h | (0)1100110 (1)0011001 |

and the binary bits in brackets are the first bit that is punctured and at least one other bit that is punctured.

70. (New) The method of claim 67, wherein the identification code of the primary cell is selected from one of the following:

| Identification label | Identification code "medium" |
|----------------------|------------------------------|
| a | (0)000 (0)000 |
| b | (0)000 (1)111 |
| c | (0)101 (0)101 |
| d | (0)101 (1)010 |
| e | (0)011 (0)011 |
| f | (0)011 (1)100 |
| g | (0)110 (0)110 |
| h | (0)110 (1)001 |

and the binary bits in brackets are the first bit that is punctured and at least one other bit that is punctured.

71. (New) The method of claim 67 or 68 wherein the selected identification code bits are transmitted within a radio frame structure.

72. (New) The method of claim 71, wherein the radio frame structure comprises 15 slots, and the corresponding selected identification code bit is provided in a 1 bit feedback identifier (FBI) field of the slot.

73. (New) The method of claim 67, 69 or 70, wherein the selected identification code bits are transmitted within a radio frame structure, which comprises 15 slots, the corresponding selected identification code bits are provided in a 2 bit feedback identifier (FBI) field of the slot.

74. (New) The method claim 67, wherein a user equipment (UE) periodically sends the selected identification code of the primary cell via a portion of an uplink feedback indicator (FBI) field.

75. (New) A method of sending an identification code of a primary cell by a user equipment, comprising:

selecting the primary cell among a plurality of cells based on a measurement of common pilot signals received from the cells;

selecting the identification code of the primary cell from one of the following:

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| Identification label | Identification code "long" |
|----------------------|----------------------------|
| a | 0000000000000000 |
| b | 101010101010101 |
| c | 011001100110011 |
| d | 110011001100110 |
| e | 000111100001111 |
| f | 101101001011010 |
| g | 011110000111100 |
| h | 110100101101001 |

and

sending the selected identification code.

76. (New) A method of sending an identification code of a primary cell by a user equipment, comprising:

selecting the primary cell among a plurality of cells based on a measurement of common pilot signals received from the cells;

selecting the identification code of the primary cell from one of the following:

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| Identification label | Identification code "medium" |
|-------------------------|---------------------------------|
| A | (0)0000000 |
| B | (0)1010101 |
| C | (0)0110011 |
| d | (0)1100110 |
| e | (0)0001111 |
| f | (0)1011010 |
| g | (0)0111100 |
| h | (0)1101001 |

and

sending the selected identification code after at least one bit indicated by brackets is punctured.

77. (New) A method of sending an identification code of a primary cell by a user equipment, comprising:

selecting the primary cell among a plurality of cells based on a measurement of common pilot signals received from the cells;

selecting the identification code of the primary cell from one of the following:

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| Identification label | Identification code "short" |
|-------------------------|--------------------------------|
| a | 00000 |
| b | 01001 |
| c | 11011 |
| d | 10010 |
| e | 00111 |
| f | 01110 |
| g | 11100 |
| h | 10101 |

and

sending the selected identification code.

78. (New) A method of sending an identification code of a primary cell by a user equipment, comprising:

selecting the primary cell among a plurality of cells based on a measurement of common pilot signals received from the cells;

selecting the identification code of the primary cell from one of the following:

| Identification label | Identification code "long" |
|----------------------|----------------------------|
| a | (0)0000000 (0)0000000 |
| b | (0)0000000 (1)1111111 |
| c | (0)1010101 (0)1010101 |
| d | (0)1010101 (1)0101010 |
| e | (0)0110011 (0)0110011 |
| f | (0)0110011 (1)1001100 |
| g | (0)1100110 (0)1100110 |
| h | (0)1100110 (1)0011001 |

and

sending the selected identification code after at least one bit indicated by brackets is punctured.

79. (New) A method of sending an identification code of a primary cell by a user equipment, comprising:

selecting the primary cell among a plurality of cells based on a measurement of common pilot signals received from the cells;

selecting the identification code of the primary cell from one of the following:

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| Identification label | Identification code "medium" |
|----------------------|------------------------------|
| a | (0)000 (0)000 |
| b | (0)000 (1)111 |
| c | (0)101 (0)101 |
| d | (0)101 (1)010 |
| e | (0)011 (0)011 |
| f | (0)011 (1)100 |
| g | (0)110 (0)110 |
| h | (0)110 (1)001 |

and

sending the selected identification code after at least one bit indicated by brackets is punctured.

80. (New) A method of sending an identification code of a primary cell by a user equipment, comprising:

selecting the primary cell among a plurality of cells based on a measurement of common pilot signals received from the cells;

selecting the identification code of the primary cell from one of the following:

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| Identification label | Identification code "short" |
|----------------------|-----------------------------|
| a | 000 000 |
| b | 000 111 |
| c | 101 101 |
| d | 101 010 |
| e | 011 011 |
| f | 011 100 |
| g | 110 110 |
| h | 110 001 |

and

sending the selected identification code.

81. (New) The method of claim 75, 76, or 77, wherein the selected identification code bits are transmitted within a radio frame structure, which comprises 15 slots, and the corresponding selected identification code bit is provided in a 1 bit feedback identifier (FBI) field of the slot.

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82. (New) The method of claim 78, 79, or 80, wherein the selected identification code bits are transmitted within a radio frame structure, which comprises 15 slots and the corresponding selected identification code bits are provided in a 2 bit feedback identifier (FBI) field of the slot.